Product Testing and Research Capabilities with Mount Washington Observatory

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Abstract

Home to the fastest winds ever observed by man, 231 mph, Mount Washington's legendary extremes have earned the Mount Washington Observatory worldwide acclaim. This fully-staffed mountaintop weather station is the only one of its kind in the Western Hemisphere. At 6,288 feet above sea level, Mount Washington is the tallest peak in the northeastern United States. Since 1932, Mount Washington Observatory has studied the weather, climate, biosphere, and their dynamic interactions that have shaped the unique environment and culture of the White Mountains region. Nowhere else in the contiguous United States is able to offer such readily accessible, consistently extreme conditions. With an average year-round temperature below freezing, winter winds at or above hurricane force occurring every other day, ample precipitation, and destructive ice accretion, Mount Washington Observatory provides an unmatched natural laboratory for testing.

While a long-standing climate record at one location is valuable, expanding this record into a network of locations has proven to be even more effective in documenting and understanding the weather of the region. Mount Washington Observatory over the past decade has designed and implemented a network of eighteen solar-powered remote weather stations throughout the White Mountains region of New Hampshire. At each of these sites, the Observatory measures temperature and relative humidity. Approximately two-thirds of these sites also collect wind data.

Mount Washington Observatory strives to advance the understanding of atmospheric and climatic processes and their impacts through collaborative research that encompasses multiple scientific disciplines. Mount Washington Observatory has partnered in research with entities such as the National Aeronautics and Space Administration (NASA), Cold Regions Research and Engineering Laboratory (CRREL), Massachusetts Institute of Technology (MIT), Federal Aviation Administration (FAA), and the National Oceanic and Atmospheric Administration (NOAA). Testing for purposes of implementation has taken place with several meteorological instruments including ice detectors, sonic anemometers, snow gauges, and LIDAR. Mount Washington Observatory has also tested non-meteorological items such as dialysis machines, tents, and coffee makers that are in use today.